



WD-BB-52

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Herbicide Use for Controlling Variable-leaved Milfoil in New Hampshire

Herbicides used for milfoil control

Currently two herbicides are used in New Hampshire to control variable-leaved milfoil (*Myriophyllum heterophyllum*). Both herbicides are most effective if applied when the plants are young and growing rapidly, with most applications occurring in New Hampshire in late May or early June.

The first is diquat dibromide – trade name Reward. This is a non-selective contact herbicide that is applied to the water as a liquid. Diquat is rapidly absorbed through the leaf cuticle and acts by interfering with photosynthesis. The herbicide generally kills only the plant material it comes in contact with and has little or no effect on the root system, as it is quickly inactivated upon contact with soil. Diquat is fast-acting and can eliminate plants after only four to 24 hours of exposure.

The second herbicide is 2,4-D – trade names Aqua Kleen and Navigate. 2,4-D is a somewhat selective systemic herbicide tolerated by many aquatic monocots while controlling most dicot and some broad-leaved monocot plants. It is generally applied to the aquatic environment after being mixed with clay and formulated into pellets. Once on the waterbody bottom, the herbicide is slowly released over time and is absorbed by the roots and leaves of the plants causing abnormal growth responses. This usually kills the plants within two weeks.

Procedures and requirements for herbicide use

All pesticides used in New Hampshire must be registered with the US Environmental Protection Agency (EPA) and the New Hampshire Division of Pesticide Control (DPC). The pesticide labels associated with each pesticide product describe the approved target organisms, sites of application, application rates, and any restrictions on subsequent uses of plants, land or water to which the pesticide has been applied.

A special permit is required to perform pesticide applications to New Hampshire's surface waters. The DPC administers the special permitting procedures, which includes an application process. Prior to issuing an aquatic special permit, the DPC receives recommendations from other state agencies including the Fish and Game Department, the Division of Public Health, the Department of Environmental Services, and the Division of Forests and Lands. These recommendations are subsequently incorporated into the aquatic special permit as conditions to be followed that take into account the unique characteristics and site specific details present at each location. The use of herbicides within public surface waters is limited to only those pesticide applicators properly certified by the Division of Pesticide Control.

Water Use restrictions after herbicide treatment

Restrictions on the uses of water that follow any aquatic herbicide treatment are a combination of those which are stated upon the pesticide label as well as any additional restrictions deemed appropriate by the state reviewing agencies. The label restrictions are developed and proposed by the chemical manufacturers, require EPA approval, and are designed to balance the risks that are involved in using herbicides in aquatic areas with the potential benefits. Generally, aquatic pesticides containing diquat dibromide are less restrictive and have shorter prohibition periods for water uses following aquatic pesticide applications than do those formulated as granular 2,4-D. Uses of waters typically affected by a pesticide application include swimming, livestock watering, irrigation of ornamentals, turf and food crops, and domestic uses such as drinking, bathing, cooking, or watering pets and houseplants. Because modifications and revisions to pesticide labels are frequent within the pesticide industry, referring to the current pesticide labeling is the only certain way to determine the specific water use restrictions for any given pesticide product.

There are a variety of unique social, economic and environmental concerns associated with New Hampshire's public waters. These include the use of private intakes on public waterbodies, hydroelectric power generation, tourism, recreation, and wildlife needs including those of threatened and endangered species. These concerns are weighed with the water use restrictions as stated on the individual pesticide labels, the risks involved with the application, and the potential benefits following the application when decisions about chemical plant control in aquatic areas are made. The recommendations from agencies reviewing aquatic special permit applications (see "Procedures..." above) often result in water use restrictions that are more stringent than those found on the aquatic pesticide label.

For more information

For information about pesticides, contact the Division of Pesticide Control at (603) 271-3550 or at pesticides@agr.state.nh.us; for information about invasive aquatic plants in New Hampshire waters, go to the Department of Environmental Services website at www.des.nh.gov/wmb/-exoticspecies or contact Amy Smagula at (603) 271-2248.



Variable milfoil